



Bay of Bengal Programme Inter-Governmental Organisation

Ocean Partnership for Sustainable Fisheries and Biodiversity Conservation
– Models for Innovation and Reform: Bay of Bengal Project (TF 018233)

Regional Dialogue on “Management of Highly Migratory Fish Species
in the Bay of Bengal”

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Ecological and Economic Importance of Highly Migratory Fish Species –
*State of Knowledge*¹

ABSTRACT

Fish species or stocks that carry out extensive migrations in the EEZs and high seas are denoted as highly migratory fish species (HMFS). The HMFS are the tunas and billfishes, but includes oceanic sharks as well. Of the species listed in the UNCLOS Article 64 (Annex 1) as HMFS, 12 species of tunas and billfishes occur in the Indian Ocean. Most of these species, particularly the yellowfin tuna, skipjack tuna, albacore, bigeye tuna, three species of marlins, Indo-Pacific sailfish and swordfish are ecologically and economically important. They have unique biological characteristics such as very high fecundity and moderate to fast growth, thereby capable of moderate to high yields. Being apex predators (trophic level: > 4.0), they control the energy flow in the ecosystem from the top. Being migratory, they transfer and disperse energy from coastal ecosystems to open oceans and vice versa. Being large-sized fish with long life span, the HMFS are considered as sentinels and are indicators of ocean health. Considering their importance, the HMFS should be managed for maintenance of the entire ecological processes, and not for sustaining their populations alone.

Among finfishes, many species of HMFS are economically important, and are highly traded in international markets. They provide food and livelihoods for people, and are considered more than just seafood. In the Indian Ocean, 47 coastal and Distant Water Fishing Nations (DWFN) fish for the HMFS, particularly the prime tuna species. The fishery has developed in the last 7 decades and consequently, the yield has increased from 47,900 tonnes in 1950 to 1.66 million tonnes in 2015. The actual (current) economic value of the tuna stocks in the IO is not known (in terms of the current levels of resource rent being generated). However, preliminary estimates indicate that the potential sustainable dock and end values of both the principal and neritic tuna stocks in the Indian Ocean are 2.06 – 2.32 billion US\$ and 8.72 billion US\$, respectively.

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The economic valuation of HMFS fisheries needs to be improved by considering the (i) economic impact of tuna fisheries (employment, revenues from domestic licensing and fishing agreements with DWFN); (ii) value of the tuna trade (import and export quantities and values); and (iii) value of fisheries production (measured as the financial turnover of the sector, using landings and price data). Economic valuation of HMFS fisheries assumes importance as the catch of some species (yellowfin, sailfish and marlins) is either close to or has exceeded the Maximum Sustainable Yield (MSY). It has been estimated that the yellowfin tuna stock has been overfished in the Indian Ocean in 2015 and there is need to reduce the catch by 20 to 30 percent.

The fishery for HMFS will realise full economic potential only if the following areas are addressed: (i) improvement in economics assessment; (ii) catch up to the Maximum Economic Yield (MEY); (iii) improved performance in the entire value chain; (iv) upgrading of fisheries governance and management framework; and (v) development of regional vision and strategy.
